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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,613	09/04/2003	Joseph H. Johnson	2867-661	7994

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WITHROW & TERRANOVA, P.L.L.C.
100 REGENCY FOREST DRIVE
SUITE 160
CARY, NC 27518

EXAMINER

QUINTO, KEVIN V

ART UNIT	PAPER NUMBER
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2826

MAIL DATE	DELIVERY MODE
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10/27/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/656,613	Applicant(s) JOHNSON ET AL.	
	Examiner Kevin Quinto	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12, 14-19, 32, 33 and 42-50 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-12, 14, 15, 17-19, 32, 33, 42 and 44-50 is/are allowed.
- 6) ☒ Claim(s) 16 is/are rejected.
- 7) ☒ Claim(s) 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claim 16 is withdrawn in view of the newly discovered reference(s) to Fellner (USPN 5,296,047). Rejections based on the newly cited reference(s) follow. Furthermore claim 43 is no longer allowable due to the addition of an incomprehensible word to the preamble (see paragraph 2 below).

Claim Objections

2. Claim 43 is objected to because of the following informalities: claim 43 now contains an incomprehensible word in the preamble, "Ak@-th." Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malhi (USPN 5,349,207) in view of Fellner (USPN 5,296,047).

5. In reference to claim 16, Malhi (USPN 5,349,207) discloses a similar structure. Figures 5a-5e of Malhi discloses a silicon carbide based Silicon structure comprising a Silicon Carbide substrate (30). A bonding layer (54, 56, 58) comprising a silicon

germanium layer overlies the silicon carbide substrate (30). There is a single crystal silicon semiconductor material (20) having a top surface. The single crystal silicon semiconductor material (20) overlies the bonding layer (54, 56, 58). The single crystal silicon semiconductor material (20) is bonded to the silicon carbide substrate (30) via the bonding layer (54, 56, 58). Malhi makes it clear that the silicon carbide substrate (30) is to be of a conductivity type with a first dopant concentration since a semiconductor device is to be formed with it (claims 12 and 20). Malhi does not disclose the conductivity type of the silicon semiconductor material. However Fellner (USPN 5,296,047) discloses that n-type and p-type silicon substrates are well known materials in the semiconductor art. The applicant is reminded in this regard that it has been held that a mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. See *In re Leshin* 227 F.2d 197, 125 USPQ 416 (CCPA 1960) and also *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore this limitation is not patentable over Malhi and Fellner. Malhi does not disclose the dopant concentration of the silicon semiconductor material. However:

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Thus claim 16 is not patentable over Malhi and Fellner.

Allowable Subject Matter

6. Claims 9-12, 14, 15, and 17-19 are allowed. Claims 32, 33, and 42 and 44-50 were allowed in the previous Office action.

7. The following is a statement of reasons for the indication of allowable subject matter: the applicant has rewritten claims 9, 11, 14, 15, 17, 18 to incorporate the base claim. The allowable subject matter of claims 9, 11, 14, 15, 17, 18, 32, 33, 42, and 44-50 was discussed in a previous Office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quinto whose telephone number is (571) 272-1920. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin Quinto/
Examiner, Art Unit 2826

/Minh-Loan T. Tran/
Primary Examiner
Art Unit 2826